```
=> d que stat l24
L18 (         1)SEA FILE=REGISTRY ABB=ON  "PROPYLENE GLYCOL ALGINATE"/CN
L19 (    158200)SEA FILE=HCAPLUS ABB=ON  (L18 OR ?GLYCEROL? OR ?SUGAR?(W)?ALCOH
                OL? OR ?STARCH?(W)?HYDROLYSATE? OR (?CORN? OR ?DEXTROSE?)(W)?SY
                RUP? OR (?PROPYLENE?(W)?GLYCOL? OR ?GLYCEROL?)(W)?ALGINATE? OR
                ?GLYCEROL?(W)(?MONOSTEARATE? OR ?STEARATE?) OR ?SODIUM?(W)?STEA
                ROYL?(W)?LACTYLATE?)
L20 (       118)SEA FILE=HCAPLUS ABB=ON  L19 AND (?STARCH?(W)(?GRANULE? OR
                ?PARTICLE?) OR ?FOOD?(W)?COMPOSITION?)
L21 (         7)SEA FILE=HCAPLUS ABB=ON  L20 AND ?MEMBRANE?
L22 (       349)SEA FILE=HCAPLUS ABB=ON  L19 AND ?MEMBRANE?(W)?STRUCTURE?
L23 (         1)SEA FILE=HCAPLUS ABB=ON  L22 AND ?STARCH?
L24           8 SEA FILE=HCAPLUS ABB=ON  L21 OR L23


=> d ibib abs hitrn l24 1-8

L24  ANSWER 1 OF 8  HCAPLUS  COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER:         1999:736224  HCAPLUS
DOCUMENT NUMBER:          131:321812
TITLE:                    Foods containing water-insoluble compounds
INVENTOR(S):              Weder, Hans Georg; Weder, Marc Antoine; Schneider,
                          Martin; Supersaxo, Andreas
PATENT ASSIGNEE(S):       Vesifact AG, Switz.
SOURCE:                   Eur. Pat. Appl., 14 pp.
                          CODEN: EPXXDW
DOCUMENT TYPE:            Patent
LANGUAGE:                 German
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
     ---------------   ----  --------       ---------------  --------
     EP 956779          A1   19991117       EP 1998-108520   19980511
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO
     CA 2331661         AA   19991118       CA 1999-2331661  19990507
     WO 9957995         A1   19991118       WO 1999-EP3157   19990507
         W:  AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,
             DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE,
             KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,
             MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,
             TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU,
             TJ, TM
         RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
             ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
             CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     AU 9940392         A1   19991129       AU 1999-40392    19990507
     EP 1085821         A1   20010328       EP 1999-923558   19990507
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, IE, FI
     BR 9911775         A    20011002       BR 1999-11775    19990507
     JP 2002514394      T2   20020521       JP 2000-547861   19990507
     NO 2000005659      A    20010104       NO 2000-5659     20001109
PRIORITY APPLN. INFO.:                    EP 1998-108520   A  19980511
                                          WO 1999-EP3157   W  19990507
AB   A functional food, "NanoFood", in which water-insol. compds. may be
     incorporated, comprises a membrane-forming mol., a coemulsifier
     and a lipophilic constituent in a food compn.
REFERENCE COUNT:          3     THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
                                RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
```

L24 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1984:50238 HCAPLUS
DOCUMENT NUMBER: 100:50238
TITLE: The energy equivalents of ATP and the energy values of food proteins and fats
AUTHOR(S): Livesey, Geoffrey
CORPORATE SOURCE: Div. Nutr. Food Qual., ARC Food Res. Inst., Norwich, NR4 7UA, UK
SOURCE: British Journal of Nutrition (1984), 51(1), 15-28
CODEN: BJNUAV; ISSN: 0007-1145
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Heats of combustion and energy equivs. of cytoplasmic ATP [56-65-5] were estd. for glucose [50-99-7], 101 food proteins, and 116 food fats based on amino acid and fatty acid compn. data from **food compn**. tables and the heats of combustion and energy equivs. of cytoplasmic ATP of each individual amino acid, fatty acid, **glycerol** [56-81-5], and glucose. The isodynamic equivs. of carbohydrate, fat, and protein at the biochem. level were investigated. Heats of combustion of food proteins and fats derived from compositional data were within 1% of published values obtained by calorimetry. Cytoplasmic ATP equivs. for glucose, fat, and protein ranged from 9.0 to 14.7, 8.6 to 14.6, and 6.4 to 13.2 mol cytoplasmic ATP/MJ of metabolizable energy, resp., depending on the choice of mitochondrial proton stoichiometries for these estns. The range is extended further when considering the level and type of mitochondrial uncoupling. Isobioenergetic relations between the efficiencies of glucose (G) and fat (F) (F = 1.05G-0.9) and glucose and protein (P) (P = G(1.02-0.19f)-(1.0.5f)) energy conversions (where f is the fraction of protein oxidized via gluconeogenesis) were obtained and were essentially independent of the choice of mitochondrial proton stoichiometry and the level and type of uncoupling of oxidative phosphorylation. Potential errors in previous ests. of ATP yield from protein were shown to be as much as -17.6 to >118%; accounting for the efficiency of mitochondrial oxidative phosphorylation narrows this to between -7.9 and 17.4% and accounting for the fraction of protein oxidized via gluconeogenesis limits this further to between -7.9 and 11.1%. Remaining uncertainty is attributed mostly to lack of knowledge about the energy cost of substrate absorption from the gut and transport across cell **membranes**. Coeffs. of variation (cv) in the cytoplasmic ATP yield/g protein and /g protein N for the 101 food proteins were large (0.033 and 0.058, resp.). This is attributed mostly to variation in the metabolizable heats of combustion (CV 0.033 and 0.053, resp.) and to a much smaller extent in the efficiency with which cytoplasmic ATP equivs. are generated/MJ of metabolizable energy (CV 0.01). It is concluded that the current understanding of biochem. energy transduction is sufficient to permit only a crude est. of the energy equivs. of cytoplasmic ATP but that these equivs. vary by <5% between both different food proteins and different food fats. Isobioenergetic equivs. for carbohydrates, fats, and protein which could be applied to modify the Atwater conversion factors are possible but require first an accurate quantification of the energy equiv. of cytoplasmic ATP for glucose in vivo, and an indication that oxidative phosphorylation is similarly efficient in different individuals.

L24 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1983:2784 HCAPLUS
DOCUMENT NUMBER: 98:2784
TITLE: Light-induced changes in the lipid composition and ultrastructure of plastids from potato tubers
AUTHOR(S): Sandelius, Anna Stina; Liljenberg, Conny

CORPORATE SOURCE: Bot. Inst., Univ. Goeteborg, Goeteborg, S-413 19, Swed.
SOURCE: Physiologia Plantarum (1982), 56(3), 266-72
CODEN: PHPLAI; ISSN: 0031-9317
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Amyloplasts and **starch**-contg. plastids from green tissue (amylochloroplasts) from potato tubers (Solanum tuberosum, var King Edward) were sepd. from other cell organelles by sedimentation in a discontinuous sucrose gradient. Their lipid compn. was analyzed with emphasis on galactolipids and phospholipids and the fatty acid compns. of these lipids. Irradn. of tubers caused increased ratios of monogalactosyl **diacylglycerol** to digalactosyl **diacylglycerol** and of total galactolipids to total phospholipids in the plastid membranes. Furthermore, the degree of unsatn. of the fatty acids increased in all lipid classes analyzed, this effect being most prominent in the galactolipids. The ultrastructural studies made on tuber tissue revealed that irradn. caused a change in **starch** grain size distribution concomitant with formation of **membrane structures** resembling grana within the envelope. In many cases, prolamellar bodies and plastoglobuli were present.

L24 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1981:170612 HCAPLUS
DOCUMENT NUMBER: 94:170612
TITLE: A nonaqueous procedure for isolating **starch granules** with associated metabolites from maize (Zea mays L.) endosperm
AUTHOR(S): Liu, Ting-Ting Y.; Shannon, Jack C.
CORPORATE SOURCE: Dep. Hortic., Pennsylvania State Univ., University Park, PA, 16802, USA
SOURCE: Plant Physiology (1981), 67(3), 518-24
CODEN: PLPHAY; ISSN: 0032-0889
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A nonaq. procedure using **glycerol** and 3-chloro-1,2-propanediol was developed for the isolation from maize of **starch granules** with assocd. metabolites. In this procedure, immature endosperm tissue was quickly frozen at -156.degree., freeze-dried, homogenized in cold **glycerol**, filtered through Miracloth, and centrifuged through a higher d. medium of 3-chloro-1,2-propanediol. **Starch granules** were isolated from the endosperm of normal and the mutant amylose-extended dull waxy. Starch and water-sol. polysaccharide recovery was high with low cytoplasmic (RNA) and nuclear (DNA) contamination. Electron microscopic examn. of the isolated **starch granules** failed to demonstrate the presence of the amyloplast's **membrane**. However, based on an examn. of fresh, freeze-dried, and rehydrated freeze-dried normal endosperm, it is suggested that the amyloplast **membrane** and enclosed stroma metabolites were dried onto the surface of the **starch granules** during the freeze-drying procedure. Anal. of the **glycerol**-propanediol isolated granules showed the presence of alc.-sol. sugars, inorg. phosphate, and phosphate-contg. compds. These sol. metabolites may represent amyloplast stroma metabolites which became bound to the **starch granules** during freeze-drying. Thus, this isolation procedure should be useful when metabolites closely assocd. with **starch granules** in situ are to be evaluated.

L24 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1981:153484 HCAPLUS
DOCUMENT NUMBER: 94:153484
TITLE: Measurement of metabolites associated with nonaqueously isolated **starch granules** from immature Zea mays L. endosperm
AUTHOR(S): Liu, Ting-Ting Y.; Shannon, Jack C.
CORPORATE SOURCE: Dep. Hortic., Pennsylvania State Univ., University Park, PA, 16802, USA
SOURCE: Plant Physiology (1981), 67(3), 525-9
CODEN: PLPHAY; ISSN: 0032-0889
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Starch granules** with assocd. metabolites were isolated from immature Z. mays endosperm by a nonaq. procedure using **glycerol** and 3-chloro-1,2-propanediol. The sol. ext. of the granule prepn. contained varying amts. of neutral sugars, inorg. phosphate, hexose and triose phosphates, org. acids, adenosine and uridine nucleotides, sugar nucleotides, and amino acids. Based on the metabolites present and on information about translocators in chloroplast **membranes**, which function in transferring metabolites from the chloroplast stroma into the cytoplasm, it is suggested that sucrose is degraded in the cytoplasm, via glycolysis, to triose phosphates which cross the amyloplast **membrane** by means of a phosphate translocator. It is further postulated that hexose phosphates and sugars are produced from the triose phosphates in the amyloplast stroma by gluconeogenesis, with starch being formed from glucose 1-phosphate via pyrophosphorylase and starch synthase enzymes. The glucose 1-phosphate to inorg. phosphate ratio in the granule prepn. was such that starch synthesis by phosphorylase is highly unlikely in corn endosperm.

L24 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1970:123244 HCAPLUS
DOCUMENT NUMBER: 72:123244
TITLE: Internal architecture of potato and canna starch. I. Crushing studies
AUTHOR(S): Hall, David M.; Sayre, Joseph G.
CORPORATE SOURCE: Dep. of Text. Eng., Auburn Univ., Auburn, AL, USA
SOURCE: Textile Research Journal (1970), 40(2), 147-57
CODEN: TRJOA9; ISSN: 0040-5175
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Edible canna and potato starches and corn and wrinkled pea starches stained with I either from the soln. or vapor phase are fractured and examd. with polarizing and scanning electron microscopes. Uniform fracture was secured by subjecting the starches either in H2O or in H2O-**glycerol** slurries between glass plates and cover glasses to various pressures with the thumb or to hydrostatic pressures that were more uniform and hence afforded better insight into the internal structure of the granules. The fractured granules of potato and canna starches indicated growth progressing from a line at the center of the granules along a central canal; no radial layering was observed; the primary method of growth was thus show n to be intussusception and not apposition as previously supposed. The granules were apparently covered by a very thin **membrane**. Severe crushing almost destroyed their ability to polarize light. Wrinkled pea starch gave evidence of growth by apposition. Canna granules showed more flat spots on their surfaces than potato granules, but the latter showed a surprising amt. of cavities in their structures.

L24 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1968:19930 HCAPLUS
DOCUMENT NUMBER: 68:19930
TITLE: Biogenesis of chloroplast **membranes**. I. Plastid dedifferentiation in a dark-grown algal mutant (Chlamydomonas reinhardi)
AUTHOR(S): Ohad, Ithak; Siekevitz, Philip; Palade, George E.
CORPORATE SOURCE: Rockefeller Univ., New York, NY, USA
SOURCE: Journal of Cell Biology (1967), 35(3), 521-52
CODEN: JCLBA3; ISSN: 0021-9525
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This paper describes the morphology and photosynthetic activity of a mutant of C. reinhardi (y-1) which is unable to synthesize chlorophyll in the dark. When grown heterotropically in the light, the mutant is indistinguishable from the wild type Chlamydomonas. When grown in the dark, chlorophyll is dild. through cell division and the photosynthetic activity (O evolution, Hill reaction, and photoredn. of NADP) decays at a rate equal to or faster than that of chlorophyll diln. However, sol. enzymes assocd. with the photosynthetic process, as well as cytochrome f and ferredoxin, continue to be present in relatively high concns. The enzymes involved in the synthesis of the characteristic lipids of the chloroplast (including mono- and digalactoside glycerides, **phosphatidylglycerol**, and sulfolipid) are still detectable in dark-grown cells. Such cells accumulate large amts. of **starch granules** in their plastids. On onset of illumination, dark-grown cells synthesize chlorophyll rapidly, utilizing their starch reserve in the process. At the morphological level, it was observed that during growth in the dark the chloroplast lamellar system is gradually disorganized and drastically decreased in extent, while other subchloroplast components are either unaffected (pyrenoid and its tubular system, matrix) or much less affected (eyespot, ribosomes). It is concluded that the dark-grown mutant possesses a partially differentiated plastid and the enzymic app. necessary for the synthesis of the chloroplast **membranes** (disks). The advantage provided by such a system for the study of the biogenesis of the chloroplast photosynthetic **membranes** is discussed. 88 references.

L24 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1913:21862 HCAPLUS
DOCUMENT NUMBER: 7:21862
ORIGINAL REFERENCE NO.: 7:3153i,3154a-i
TITLE: The Formation and Origin of Toxic Thrombosis and its Significance
AUTHOR(S): Kusama, Shigeru
CORPORATE SOURCE: Freiburg i/Br.
SOURCE: Beitr. path. Anat. (1913), 55, 458-544
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB Homologous serum can have a hemolytic and agglutinating action (expressed as a platelet thrombosis) in the circulating blood of the rabbit. In how far the primary agglutinating action is attributable to agglutination of the blood platelets is not detd., as the hemolysis, the hemoglobin soln., and the laked corpuscles, occurring at the same time, can cause blood platelet thrombosis. Laked corpuscle thrombosis occurs after intravenous injection of homologous serum and laked corpuscles, originating from the agglutinating properties of the laked corpuscles (gained by hemolysis and lost by warming). The laked corpuscles are easily sol. in circulating blood and liberate substances favoring agglutination and clotting. Agglutination of blood platelets and laked corpuscles, and fibrin clotting of the blood plasma are 2 distinct processes. Foreign serum likewise

causes blood platelet (granular masses form which are not easily redissolved as in the above), blood shadow and mixed thrombi. Acute death of animals is dependent upon thermolabil substances in the foreign serum and is occasioned by an increased viscosity of the blood, the agglutinating action of the serum upon the erythrocytes and the hemolysis, without excluding the toxic action of the foreign serum upon other vital organs. The thrombosis and fibrin coag. in the capillaries have a subordinate significance for the death of the test animal. The anatomical and histological changes after intravenous injection of ether, which acts more intensely and more rapidly on the blood, are identical with those found after the intravenous injection of foreign serum and are, K. believes, explicable in the same way. **Glycerol** intravenously injected can produce hemolysis and formation of blood platelet and blood shadow thrombi (which disappear as the expt. progresses). Ricin injected into the circulation does not produce agglutination of the erythrocytes. and blood plates of rabbits and dogs, nor does it produce hemolysis of the red blood corpuscles sufficiently to color the serum red or occasion blood platelet or blood shadow thrombosis. It calls forth a destruction of the myeloid and lymphatic cells and also the macrophages of various organs. The cell fragments thus formed, together with erythrocyte fragments, produce capillary thrombi on which fibrin deposits. The pathognomic hemorrhagic inflammation of the intestins and the degenerative changes of the organs and tissues are occasioned by the toxic action of the ricin, not by the vascular transportation. The intravenous injection of large amts. of 50.degree. killed typhoid bacilli causes in the capillary system of various organs (rabbit) a wide-spread fibrin thrombosis. This power is not destroyed by prolonged heating at 100.degree. nor weakened by previous immunizing of the exptl. animal. Dysentery bacilli and streptococci (heated to 100.degree.) reveal the same properties, indicating more of a mechanical action. The bacteria have a more or less injurious action upon the blood and hematopoetic organs, and in this sense the bacterial toxins resemble ricin in action, but are weaker. Foreign bodies, with relation to their behavior toward blood platelets, in the circulating blood, can be divided into 2 types: "benetzbaren" and "nicht benetzbaren." To the former belong india ink particles, collargol granules and olive oil, and to the latter **starch. granules**, cotton fibers and heated bacteria. The former produce first blood platelet agglutination upon which leucocytes and fibrin accumulate. The latter form first leucocyte thrombi and fibrin formation follows. The nature of $HgCl_2$ poisoning has nothing to do with capillary thromboses. The thrombotic process is a result of hemolysis, and the formation of fibrin thrombi in the intestinal capillaries is secondary to the inflammatory condition in the mucous **membrane** occasioned by the primary toxic action of $HgCl_2$.

=> d que stat l26
L25 (27)SEA L24
L26 25 DUP REMOV L25 (2 DUPLICATES REMOVED)

=> d ibib abs l26 1-25

L26 ANSWER 1 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2003332626 EMBASE
TITLE: Effect of reduced maternal protein intake in pregnancy in the rat on the fatty acid composition of brain, liver, plasma, heart and lung phospholipids of the offspring after weaning.
AUTHOR: Burdge G.C.; Delange E.; Dubois L.; Dunn R.L.; Hanson M.A.; Jackson A.A.; Calder P.C.
CORPORATE SOURCE: Dr. G.C. Burdge, Institute of Human Nutrition, Biomedical Sciences Building (62), University of Southampton, Bassett Crescent East, Southampton SO16 7PX, United Kingdom. g.c.burdge@soton.ac.uk
SOURCE: British Journal of Nutrition, (1 Aug 2003) 90/2 (345-352). Refs: 44
ISSN: 0007-1145 CODEN: BJNUAV
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 010 Obstetrics and Gynecology
029 Clinical Biochemistry
017 Public Health, Social Medicine and Epidemiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Reduced protein intake during pregnancy decreased maternal hepatic and plasma docosahexaenoic acid concentrations and impaired docosahexaenoic acid accumulation into fetal brain in the rat. The present study investigated whether restriction of maternal protein intake during pregnancy in the rat alters **membrane** phospholipid fatty acid composition in the offspring after weaning. Female rats (six per group) were mated and fed diets containing either 180 or 90 g protein/kg throughout pregnancy. Mothers were transferred to standard chow after delivery and the litters reduced to eight pups. Weaning was at 28 d and pups were killed 5 to 6 d later. Tissue weights or **membrane** total phosphatidylcholine (PC) and phosphatidylethanolamine (PE) concentrations in the offspring did not differ between dietary groups. There were significant differences between the 180 and 90 g/kg groups in liver, brain, lung and heart fatty acid composition that differed between tissues and phospholipid classes. For example, docosahexaenoic and arachidonic acid concentrations were 23 and 10 % lower respectively in hepatic PC, but not PE, in the 90 g/kg group. In brain, docosahexaenoic acid concentration was 17 % lower in PC, but not PE, while arachidonic acid content was 21 % greater in PE but unchanged in PC. The greatest differences were in unsaturated fatty acids, which suggests alterations to desaturase activities and/or the specificity of phospholipid biosynthesis. These results suggest that restricted maternal protein intake during pregnancy results in persistent alterations to **membrane** fatty acid content.

L26 ANSWER 2 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2003244478 EMBASE
TITLE: [Use of non-conventional lipid substrates in parenteral nutrition].
USO DEI SUBSTRATI LIPIDICI NON CONVENZIONALI IN NUTRIZIONE PARENTERALE.
AUTHOR: Chiarla C.; Giovannini I.; Miggiano G.A.D.

CORPORATE SOURCE: C. Chiarla, Via Augusto Tebaldi, 19, 00168 Roma, Italy.
carlo.chiarla@rm.unicatt.it
SOURCE: Clinica Terapeutica, (2003) 154/2 (135-140).
Refs: 19
ISSN: 0009-9074 CODEN: CLTEA4
COUNTRY: Italy
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 017 Public Health, Social Medicine and Epidemiology
026 Immunology, Serology and Transplantation
029 Clinical Biochemistry
LANGUAGE: Italian
SUMMARY LANGUAGE: English; Italian

AB In addition to the classic soybean oil fat emulsion, developed more than 40 years ago and still widely used, emulsions with other lipid substrates are available today for parenteral nutrition; these substrates implement the benefits offered by soybean oil when mixed with it in given proportions. Soybean oil triglycerides are rich in linoleic acid, a long chain omega-6 polyunsaturated fatty acid, which is essential and is an indispensable component of parenteral nutrition. However, very high doses of omega-6 polyunsaturated fatty acids should be avoided, particularly in some critical illnesses. Medium chain triglycerides, long well known to nutritionists and dietitians for their easy intestinal absorption, have become available in parenteral nutrition emulsions in a mixture with soybean oil. Medium chain triglycerides are completely and readily used for energy production and do not interfere significantly in the production of inflammatory mediators, in the composition of cell **membranes** and in body organ and system functions. Omega-3 polyunsaturated fatty acids, essential fatty acids derived from fish oil, permeate cell structure and affect cell activity with different mechanisms, playing also an important role in the modulation of inflammatory processes. Omega-3 emulsions in parenteral nutrition are currently added as a supplement to other fat emulsions. Knowledge of these "non-conventional" fat emulsions is being continuously improved by investigative work and clinical experience.

L26 ANSWER 3 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 2003-428759 [40] WPIDS
DOC. NO. NON-CPI: N2003-342255
DOC. NO. CPI: C2003-113105
TITLE: **Food composition** used for treating diabetes comprises **propylene glycol alginate** .
DERWENT CLASS: A97 B05 D13 E19 P13
INVENTOR(S): CHAWAN, D B
PATENT ASSIGNEE(S): (CHAW-I) CHAWAN D B
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 2002172743	A1	20021121	(200340)*		7

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2002172743	A1	US 2001-808826	20010316

PRIORITY APPLN. INFO: US 2001-808826 20010316

AN 2003-428759 [40] WPIDS
AB US2002172743 A UPAB: 20030624
NOVELTY - **Food composition** (C1) comprises **propylene glycol alginate** (PGA).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) reducing (R1) the glycemic index or abnormally high blood glucose levels which comprises including in the diet (C1) comprising at least 0.01 wt.% of either PGA or a food additive (I) comprising **glycerol, sugar alcohol, starch** hydrolyzate, **corn syrup, dextrose syrup, glycerol monostearate, sodium stearoyl lactylate,** D-glucose 3-stearate, methyl alpha -D-glucoside 6-stearate, sucrose monostearate, sorbitan tetrastearate, stearoyl-2-lactylate, sodium stearoyl fumarate, polyoxyethylene stearate or stearyl monoglyceride citrate;

(2) providing nutrition to a diabetic patient and controlling the glucose release initiated by enzymatic action which comprises enterally administering (C1) comprising at least 0.01 wt.% of PGA;

(3) reducing the blood glucose level which comprises enterally administering a **food composition** (C2) prepared by a method (M1) which comprises cooking (C2) which comprises water, PGA (at least 0.01%) and a food (II) comprising wheat, tapioca, barley, oat, potato, rice and/or corn flour in boiling water to increase the percent weight gain due to hydration relative to (C2) without PGA;

(4) controlling the **membrane structure** of a **starch granule** in a **food composition** during **starch** hydrolysis following consumption which comprises incorporating (I) or PGA into the **food composition;**

(5) a meal (D1) which comprises a **starch** containing food and either PGA or (I) at least 0.01 wt.% of the **starch** containing food;

(6) a meal (D2) comprising (II) and PGA (at least 0.01 wt.% of (II)), and

(7) strengthening the **starch** cell wall in a **starch** containing food by including in the food at least one of (I) or PGA (at least 0.01 wt.% of the food).

ACTIVITY - Antidiabetic; Anabolic.

In a test, a pasta **food composition** comprising pasta product made from semolina was cooked with **propylene glycol alginate** (PGA) (0.03%) (test) and without PGA (control). On each test day the type 2 diabetic patients were overnight fasting. Each patient was given test and control food on one day and the next days, and the blood glucose levels were determined before the breakfast each day.

The results of blood glucose analysis during 5 hours after consumption of test and control showed: the blood glucose level (mg/dL) of 104/95, 226/267 and 61/93 for test/control at 0, 1 and 5 hours respectively. The **food composition** significantly reduced the blood glucose level in type 2 diabetic patients than in patients consuming control composition.

MECHANISM OF ACTION - None given.

USE - Used for providing nutrition and treating type 2 diabetes by reducing the glycemic index, for controlling the **membrane structure** of a **starch granule** in (C1), for controlling the glucose release initiated by enzymatic action and for strengthening **starch** cell wall in **starch**-containing food (all claimed) e.g. pasta food.

ADVANTAGE - PGA Reduces cooking losses in **starch** containing food and enhances the strength of the **starch** cell wall **membrane** through gelatinization and slows down the enzymatic

hydrolysis of **starch** by insulin resulting in steady state release of glucose. The **food composition** is an alternative cost effective treatment for patients suffering from type 2 diabetes who do not like to take medicine, or combine certain medicine or cannot afford medications. The dietary supplement provides nutrition low in fat or cholesterol and reduces the blood glucose level.
Dwg.0/0

L26 ANSWER 4 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 2003-379037 [36] WPIDS
DOC. NO. CPI: C2003-100765
TITLE: Novel purified isozyme of autoclavable superoxide dismutase extracted from the plant Potentilla atrosanguinea Lodd. Var. argyrophylla, useful in cosmetic, pharmaceutical and **food compositions.**
DERWENT CLASS: A96 B04 B05 C07 D16 D21
INVENTOR(S): AHUJA, P S; KUMAR, S; SAHOO, R
PATENT ASSIGNEE(S): (COUL) COUNCIL SCI & IND RES
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 6485950	B1	20021126	(200336)*		30

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6485950	B1	US 2000-617118	20000714

PRIORITY APPLN. INFO: US 2000-617118 20000714
AN 2003-379037 [36] WPIDS
AB US 6485950 B UPAB: 20030609
NOVELTY - A purified isozyme (I) of a superoxide dismutase (SOD) extracted from plant Potentilla atrosanguinea Lodd. Var. argyrophylla, which has O2- scavenging activity which remains same before and after autoclaving, scavenges O2- from sub-zero temperature of -20 deg. C to high temperature of +80 deg. C, and which is contamination free and infection free from any living micro- and/or macro-organism after autoclaving, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a formulation (II) comprising (I) as an active ingredient;

(2) a formulation (III) comprising (I) together with a cosmetically acceptable peroxidase, peroxidase substrate, solvents, carriers and additives;

(3) a formulation (IV) comprising (I) and a substance such as surfactants, colorants, perfumes, preserving agents, emulsifiers, synthetic oil, mineral oil, vegetable oil, fatty acids, fatty alcohols, liquid carrier, water, fatty substances forming the fatty phase of an emulsion, milks creams, and resins, where at least one substance is suitable for dermopharmaceutical purposes;

(4) a formulation (V) for topical application comprising (I), where the formulation is in the form of lotion, serum, liquid, semiliquid or milk emulsion where the emulsion is obtained by dispersing a fatty phase in an aqueous phase of oil-in-water or water-in-oil or suspensions, cream emulsions, gel emulsions, microgranulates or vesicular dispersions that are ionic or nonionic;

(5) a drug delivery system (VI) comprising (I) and a polymer, and

optionally comprising an antioxidant within the matrix of the polymer, where the matrix does not interact with the antioxidant;

(6) a toothpick comprising (I);

(7) a pharmaceutical composition comprising (I) and a therapeutic agent;

(8) identifying (I), by localizing various isozymes of SOD in the crude extract of the leaf on 7-12% native polyacrylamide gel, after electrophoresis, rinsing the gel with distilled water followed by incubation for 30 minutes in 2.5 mM NBT, immersing the gel in 1.17 multiply 10-6 M riboflavin for 20 minutes and removed later onto a petri plate to expose to a light intensity of 25-1000 micro Einstein/m2/second using a fiber optic light source (Nikon) to develop purple color throughout the gel except for the locations where SOD was localized, incubating with nitroblue tetrazolium and riboflavin and exposing to light at 4 different temperatures of -20, 4, 25 and 60 deg. C, when working at -20 deg. C, adding **glycerol** (50% final concentration) in the incubation solution to avoid freezing, and identifying the most prominent isozyme at all the temperatures for the purpose of purification; and

(9) preparing (I), by homogenizing leaf tissue in a homogenizing buffer at pH 7.0-7.5 and at 4-8 deg. C, filtering the homogenate and centrifuging the filtrate at 8000-13000 rpm for 10-30 minutes at 4-8 deg. C, decanting the supernatant for purification of SOD, precipitating SOD with 30-60% ammonium sulfate, dissolving the precipitate in 10-100 mM buffer at pH 7-7.5 and dialyzing for 18-36 hours with 6-12 changes of the buffer, loading the dialyzed protein onto a DEAE-Cellulose column and eluting with 100-500 ml of 100-500 mM KCl prepared in a buffer (all autoclaved or non-autoclaved), assaying fractions containing protein for SOD, fractionating SOD containing fractions on HPLC using 100-200 mM KCl prepared in 10-50 mM phosphate buffer with a flow rate of 0.8-1.0 ml/minute, assaying each peak for SOD activity, obtaining SOD peak and concentrating using a protein concentrator column, assaying concentrated protein for SOD activity at different temperatures ranging between -10 to 80 deg. C in the presence of **glycerol** to avoid freezing at sub-zero temperatures, localizing the purified SOD on 7-12% polyacrylamide gel by known methods, identifying the target isoenzyme by the above method, and recovering the most prominent isoenzyme.

ACTIVITY - Antipsoriatic; Dermatological.

No biological data given.

MECHANISM OF ACTION - Antioxidant.

USE - (I) is useful as formulations in the form of a day or night cream, makeup removal cream, foundation cream, sun cream, fluid foundation, makeup removal milk, body protection or care milk, sun milk, lotion, gel, cleansing lotion, sun lotion, artificial tanning lotion, composition for the bath or a deodorizing composition where the formulation may further comprise a bactericidal agent, or in the form of a shampoo, for slowing down the loss of hair, and for promoting fresh growth of hair. (I) is also useful as a oral or dental composition. (I) is useful as a cosmetic composition capable of maintaining the keratinous structure of the skin or of the hair. (II) is useful for treatment of psoriasis, seborrhoeic dermatitis and related skin and scalp conditions. (VI) is adapted to dosage forms for implants which will release the antioxidant in a controlled manner (claimed).

ADVANTAGE - (I) is capable of being autoclavable at temperature upto 121 deg. C to ensure a cheap germ-free sterile preparation for pharmaceuticals, cosmetics and food industry. (I) functions effectively at temperatures lower than -10 deg. C, even at sub-zero temperatures. (I) remains stable at ambient temperature for one month without adding any stabilizing agent. The specific activity of (I) is 66000 Units/mg of protein, which is substantially higher than those reported so far.

Dwg.0/12

L26 ANSWER 5 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2002146956 EMBASE
TITLE: Dietary fish oil does not prevent doxorubicin-induced cardiomyopathy in rats.
AUTHOR: Matsui H.; Morishima I.; Hayashi K.; Kamiya H.; Saburi Y.; Okumura K.
CORPORATE SOURCE: Dr. H. Matsui, Internal Medicine II, Nagoya University, School of Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya 466-8550, Japan. hideom@med.nagoya-u.ac.jp
SOURCE: Canadian Journal of Cardiology, (2002) 18/3 (279-286). Refs: 40
ISSN: 0828-282X CODEN: CJCAEX
COUNTRY: Canada
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Background: Dietary fish oil potentiates the susceptibility of cellular **membranes** to lipid peroxidation, although it is also known to have beneficial effects on the development of cardiovascular diseases. Objective: The effects of dietary fish oil against doxorubicin-induced cardiomyopathy, in which free radicals and lipid peroxidation are involved, were investigated in rats. Animals and methods: Sprague-Dawley rats (100 g) were fed a standard diet or a high fish oil diet (containing 10% fish oil) throughout the experimental period. Four weeks after starting each diet, experimental rats were treated with doxorubicin (cumulative dose 15 mg/kg) or vehicle (0.28 M dextrose solution). After three weeks of doxorubicin treatment, the cardiac performance, myocardial lipid peroxidation and myocardial vitamin E level were assessed. Results: Compared with control rats, doxorubicin-treated rats showed a significantly increased mortality rate ($P<0.05$), and significantly decreased systolic blood pressure and left ventricular fractional shortening ($P<0.01$). The myocardial thiobarbituric acid-reactive substance level was significantly higher in doxorubicin-treated rats than in control rats ($P<0.01$), while the myocardial vitamin E level was significantly lower ($P<0.05$). Dietary fish oil enhanced the myocardial lipid peroxidation caused by doxorubicin, which was associated with a further decrease in myocardial vitamin E level. As a result, the rats treated with both doxorubicin and the high fish oil diet showed the highest mortality rate and the lowest cardiac performance of all the experimental groups. Conclusions: Dietary fish oil may reduce antioxidant defences and accelerate susceptibility of the myocardium to lipid peroxidation in rats under doxorubicin treatment. This may partly explain why dietary fish oil does not prevent doxorubicin-induced cardiomyopathy.

L26 ANSWER 6 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2001242459 EMBASE
TITLE: Mediterranean diet and health: Biological importance of olive oil.
AUTHOR: Alarcon de la Lastra C.; Barranco M.D.; Motilva V.; Herrerias J.M.
CORPORATE SOURCE: C. Alarcon de la Lastra, Departamento de Farmacologia, Facultad de Farmacia, C/Profesor Garcia Gonzalez s/n, 41012 Sevilla, Spain
SOURCE: Current Pharmaceutical Design, (2001) 7/10 (933-950). Refs: 120
ISSN: 1381-6128 CODEN: CPDEFP
COUNTRY: Netherlands

DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Olive oil, the main fatty component of the Mediterranean diet, is characterized by consisting of monounsaturated fatty acids as well as by its elevated content in antioxidant agents. This oil exhibits numerous biological functions which are beneficial for the state of health. A diet rich in monounsaturated fatty acids provides an adequate fluidity to the biological **membranes**, diminishing the hazard of lipid peroxidation which affects polyunsaturated fatty acids. Moreover, the antioxi dants present in olive oil are able to scavenge free radicals and afford an adequate protection against peroxidation. Regarding the heart, olive oil decreases the plasmatic levels of LDL-cholesterol and increases those of HDL-cholesterol, hence diminishing the risk of suffering from heart complaints. In this context, it has been suggested that increased consumption of monounsaturated fatty acids in place of polyunsaturated fatty acids will render circulating lipoproteins less sensitive to peroxidation and thereby diminish the development of atherosclerosis. Olive oil has also been proven to contribute to a better control of the hypertriglyceridemia accompanying diabetes and may reduce the risk of breast cancer and colorectum. On the other hand, several investigations have suggested that olive oil can be beneficial in inflammatory and autoimmune diseases, such as rheumatoid arthritis. In this sense, some reports have indicated that olive oil modifies inflammatory cytokines production. As for the digestive system, olive oil enhances gallbladder emptying consequently reducing cholelithiasis risk, decreases the pancreatic exocrine secretion and gastric secretory function in response to food. Finally, it has been demonstrated that a diet rich in olive oil is associated with a high percentage of gastric ulcer healing and affords a higher resistance against non steroidal antiinflammatory drugs-induced gastric ulcerogenesis.

L26 ANSWER 7 OF 25 JICST-EPlus COPYRIGHT 2003 JST on STN
ACCESSION NUMBER: 1020537186 JICST-EPlus
TITLE: Rational designing methods of pharmaceutical preparations considered from the drug epidemiological viewpoint, and the developmental studies on DDS.
AUTHOR: SAIJO SHIGEJIRO
CORPORATE SOURCE: Kobeyakudai Haitekurisachise
SOURCE: Kobe Yakka Daigaku Haiteku, Risachi, Senta Seibi Jigyo Jigyo Hokokusho. Heisei 12 Nendo, (2001) pp. 397-399. Journal Code: N20021139 (Ref. 9)
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Short Communication
LANGUAGE: Japanese
STATUS: New
AB The following were examined: the drug-delivery system, the molecular recognition, as well as the drug amplexus mechanism, permeability, and releasability of cyclodextrin, etc.The software material for a strong correlation of the hydrogen-bond property was designed using the molecular recognition.The **membrane structure** was observed through an analysis of the drug permeability of Mycobacterium tuberculosis.The experiment on quantification of a trace of the drug was carried out, and furthermore for purposes of elucidation of the hemolysis mechanism of cyclodextrin, the interaction with erythrocytic membrane proteins was studied.

L26 ANSWER 8 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2001138803 EMBASE
TITLE: Bovine milk gangliosides: Changes in ceramide moiety with stage of lactation.
AUTHOR: Martin M.-J.; Martin-Sosa S.; Hueso P.
CORPORATE SOURCE: P. Hueso, Depto. Bioquimica Biol. Molec., Edificio Departamental (lab. 103), Universidad de Salamanca, E37007 Salamanca, Spain. phueso@gugu.usal.es
SOURCE: Lipids, (2001) 36/3 (291-298).
Refs: 30
ISSN: 0024-4201 CODEN: LPDSAP
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The stage of lactation is one of the most important factors that influence milk composition. Changes in fatty acids from **triacylglycerols** and phospholipids have already been reported, in this study, we looked for a lactational change in the ganglioside lipid moiety since ganglioside contents and patterns vary strongly with stage of lactation, individual gangliosides from four stages were isolated, methanolyzed to cleave the bonds between individual constituents, and derivatized for gas-liquid chromatography and gas chromatography/mass spectrometry analyses. Ceramide components, both fatty acids (as methyl esters derivatives) and long-chain bases, were identified and quantified. The results pointed to a marked change in ceramide from colostrum to milk that was characterized by a dramatic decrease in saturated and the longest-chain fatty acids as well as an increase in 18:1 and 18:2. The major long-chain base along lactation was a recently described structure, 3-ethoxy-15:0 sphinganine. Other new long-chain base structures appeared in these gangliosides. All these changes suggest differences in the fluidity of the fat globule **membrane**, reflecting physiological variations in cows with respect to milk production.

L26 ANSWER 9 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2001198360 EMBASE
TITLE: Behaviour of formula emulsions containing hydrolysed whey protein and various lecithins.
AUTHOR: Tirok S.; Scherze I.; Muschiolik G.
CORPORATE SOURCE: I. Scherze, Department of Food Technology, Institute of Nutrition, Friedrich-Schiller-University, Dornburger Str. 29, D-07743 Jena, Germany. scherze@mampf.ieu.uni-jena.de
SOURCE: Colloids and Surfaces B: Biointerfaces, (2001) 21/1-3 (149-162).
Refs: 39
ISSN: 0927-7765 CODEN: CSBBEQ
PUBLISHER IDENT.: S 0927-7765(01)00168-0
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Formula emulsion systems are used as enteral, sports and health products. In some formulas addition of hydrolysed protein is necessary to guarantee ease of digestion and hypoallergenicity. In the low fat emulsion model an increase in the content of lecithin (phospholipid mixture) was required, in consideration of the advice of the Food and Nutrition Board (USA) for choline supplementation. The individual and interactive effects of whey protein isolate (WPI) or hydrolysate (WPH) (3.7 and 4.9% w/w), unmodified

deoiled or hydrolysed lecithin (0.48 or 0.7% w/w) and carbohydrate in the form of maltodextrin with dextrose equivalent (DE) 18.5 or glucose syrup with DE 34 (11% w/w) on the properties of formula emulsions with 4% v/w sunflower oil, were investigated using a full factorial design. The emulsions were characterised by particle size distribution, coalescence stability, creaming rate, and also surface protein and lecithin concentration. WPI-containing emulsions proved to be stable against coalescence and showed only little creaming after 1 and 7 days standing. There was a significant increase in the mean droplet size and a significant deterioration of coalescence and creaming stability when WPH instead of WPI was used as the protein source, due to the lower number of large peptides and lower surface activity of the WPH. Increasing the WPH concentration led to an increase in oil droplet size and further deterioration of the stability of the emulsions. The **starch hydrolysate** and lecithin also significantly influenced the emulsion properties. Their influence was less strong when the emulsion contained WPI. Under the conditions used WPH-based emulsions were more stable, in terms of creaming and coalescence, when a low level of protein was used in conjunction with hydrolysed lecithin and glucose syrup. Oil droplets in emulsions containing unmodified lecithin in either the continuous or disperse phase and WPH in the continuous phase were very sensitive to coalescence. The addition of **starch hydrolysates** (DE 18.5) induced intensive flocculation and phase separation in these emulsions. .COPYRGT. 2001 Elsevier Science B.V.

L26 ANSWER 10 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 2000147585 EMBASE
TITLE: Recent advances in lipid nutrition in fish larvae.
AUTHOR: Izquierdo M.S.; Socorro J.; Arantzamendi L.; Hernandez-Cruz C.M.
CORPORATE SOURCE: M.S. Izquierdo, Grupo de Invest. en Acuicultura, ICCM and ULPGC, Ciecias Basicas, Tafira Baja, Las Palmas de Gran Canaria, Spain. marisoli@iccm.rcanaria.es
SOURCE: Fish Physiology and Biochemistry, (2000) 22/2 (97-107). Refs: 67
ISSN: 0920-1742 CODEN: FPBIEP
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 002 Physiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Due to the importance of dietary lipid utilization for larval rearing success, increasing attention has been paid during the last years to different aspects of larval lipid nutrition such as digestion, absorption, transport and metabolism, which are frequently studied by different research groups. The present study reviews the published information on these aspects, including some recent results obtained in our laboratory, that contribute to a better understanding of larval lipid nutrition. Neutral lipase activity was found in the digesta of larval gilthead seabream as early as first feeding, followed by a significant increase which reached up 8 times the initial levels at day 15 and was clearly influenced by the fatty acid composition of dietary lipids. Accordingly, the capacity for lipid absorption by the intestinal epithelium has been also observed at the onset of exogenous feeding, although the specific location in the different digestive tract segments differ with species. Whereas the capacity to absorb lipid increases with development in live prey-fed larvae, this improvement is delayed in larvae fed formulated diet. Increasing dietary phosphatidyl cholines levels enhanced lipid absorption regardless of whether it is of soybean or marine origin, but the latter improved hepatic lipid utilization. Enzymatic, histological and

biochemical evidences suggest that marine fish larvae are able to effectively digest and absorb n-3 HUFA-rich **triacylglycerols**, but feeding with **phosphoacylglycerols**, particularly if they are rich in n-3 HUFA, would enhance **phosphoacylglycerols** digestion and specially lipid transport allowing a better n-3 HUFA incorporation into larval **membrane** lipids and promoting fish growth. Although the essentiality of n-3 HUFA for larval marine fish has been studied extensively, only recently has the importance of dietary arachidonic acid in the larvae of few species been recognised. Evidences for competitive interactions among these essential fatty acids suggest that besides a minimum dietary requirement for each essential fatty acid, their relative ratios must also be considered.

L26 ANSWER 11 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 1999437190 EMBASE
TITLE: Stories about acyl chains.
AUTHOR: Lands W.E.M.
CORPORATE SOURCE: W.E.M. Lands, Alcohol Abuse/Alcoholism Natl. Inst., NIH, Bethesda, MD, United States
SOURCE: Biochimica et Biophysica Acta - Molecular and Cell Biology of Lipids, (2000) 1483/1 (1-14).
Refs: 143
ISSN: 1388-1981 CODEN: BBMLFG
PUBLISHER IDENT.: S 1388-1981(99)00177-8
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English

L26 ANSWER 12 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1999-561822 [47] WPIDS
DOC. NO. CPI: C1999-163753
TITLE: Compositions containing lysophosphatidic acids and their analogs to inhibit apoptosis.
DERWENT CLASS: A96 B05 D21 D22 E19
INVENTOR(S): BAXTER, A D; BOYD, E A; GODDARD, J G; PICKER, D H; PRICE, S; UMANSKY, S R; WIJKMANS, J C H M
PATENT ASSIGNEE(S): (LXRB-N) LXR BIOTECHNOLOGY INC; (OXFO-N) OXFORD ASYMMETRY LTD
COUNTRY COUNT: 87
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9947101	A2	19990923	(199947)*	EN	113
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
AU 9931915	A	19991011	(200008)		
EP 1069895	A2	20010124	(200107)	EN	
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU NL PT SE					

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9947101	A2	WO 1999-US5943	19990317

AU 9931915	A	AU 1999-31915	19990317
EP 1069895	A2	EP 1999-913956	19990317
		WO 1999-US5943	19990317

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9931915	A	Based on	WO 9947101
EP 1069895	A2	Based on	WO 9947101

PRIORITY APPLN. INFO: US 1998-78375P 19980318
AN 1999-561822 [47] WPIDS
AB WO 9947101 A UPAB: 19991116
NOVELTY - Compositions comprising lysophsphatidic acids and analogs or derivatives thereof of formulae (I) or (II) used to inhibit apoptosis.

DETAILED DESCRIPTION - Compositions comprising compounds (I) or (II) or their salts are claimed:

M = O or S;

W = R-C(X)-X-(CH2)n-CH(Z)-CH2-Y, R-X-(CH2)n-CH(Z)-CH2-Y, R-C(X)-L-(CH2)n-(CH(V))m-CH(Z)-CH2-Y or R-C(O)-NH-(CH2)n-CH(Z)-CH2-Y;

Y = O or S;

R = optionally substituted, saturated or unsaturated alkyl or ((CH2)pO)q(CH2)pT;

q = 1-900; p= 2-10;

V = OH, SH, H, NH2, halo, OPO3H2 or OSO3H;

n = 0-10; m = 0-10; Z = OH, SH, NH2, halo, OPO3H2, H, O(CH2)bCH3 or SO3H;

b = 0-2; L = O, S or CH2;

X = O or S.

W = SH, OH, OCH2CH(NH2)CO2H, OCHCH3CH(NH2)CO2H, OPO3H2, OPO2HOPO3H2 or Q; with the proviso that when one W is Q the other W is OH; Q = R-(CH2)n-X-C(X)-CH(Z)-CH2-Y or R-(CH2)n-L-C(X)-(CH(V))m-CH(Z)-CH2-Y; Y = O or S;

R = optionally substituted saturated or unsaturated alkyl or ((CH2)pO)q(CH2)pT;

q = 1-900;

p=2-10; T = OH or O(CH2)bCH3;

b = 0-10; V = OH, SH, H, NH2, halo, OPO3H2 or OSO3H;

n = 0-10; m = o-10; Z = OH, SH, NH2, halo, OPO3H2, H, O(CH2)bCH3 or SO3H; b= 0-2;

L = O, S or CH2;

X = O or S; M = P or S; with the proviso that when M is S one W is (=O) and the other W is SH, OH, OCH2CH(NH2)CO2H, OCHCH3CH(NH2)CO2H, OPO3H or OPO2HOPO3H2.

INDEPENDENT CLAIMS are made for the following:

(1) A composition comprising a compound (I) or (II) and a potentiating agent;

(2) A composition comprising a compound (I) or (II) and an excipient;

(3) A composition comprising a compound (I) or (II) and a pharmaceutically active agent

ACTIVITY - Anti-apoptotic.

USE - The compositions containing (I) or (II) have anti-apoptotic activity and can be used to preserve or restore cell, tissue or organ function. The compositions can be administered to patients suffering from a condition related to apoptosis, ischemia, traumatic injury or reperfusion damage (where the reperfusion damage can be associated with e.g. coronary artery obstruction, stroke, cerebral infarction, spinal/head trauma and concomitant severe paralysis, frostbite, coronary angioplasty, blood vessel attachment, limb attachment, organ atttachment or kidney

reperfusion), gastrointestinal perturbation caused by e.g. viruses, chemotherapeutic agents, radiation, infectious diseases such as HIV, inflammatory bowel disease and diarrhoea causing organisms, cardiovascular disorders, rejection of tissue transplantation, dermatological conditions such as wrinkling, aging or hair loss or to treat wounds such as burn wounds or in Alzheimer's disease.

DESCRIPTION OF DRAWING(S) - The figure compares the protection of serum-deprived cells with cells treated with LPS greater than Dwg.4/16

L26 ANSWER 13 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 96241008 EMBASE
DOCUMENT NUMBER: 1996241008
TITLE: Dietary (n-3) polyunsaturated fatty acids improve adipocyte insulin action and glucose metabolism in insulin-resistant rats: Relation to **membrane** fatty acids.
AUTHOR: Jing Luo; Rizkalla S.W.; Boillot J.; Alamowitch C.; Chaib H.; Bruzzo F.; Desplanque N.; Dalix A.-M.; Durand G.; Slama G.
CORPORATE SOURCE: Department of Diabetes, University of Pierre et Marie Curie, Hotel-Dieu Hospital, 1, place du Parvis Notre-Dame,75004 Paris, France
SOURCE: Journal of Nutrition, (1996) 126/8 (1951-1958). ISSN: 0022-3166 CODEN: JONUAI
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 003 Endocrinology
029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB To study the effects of dietary fish oil on insulin-stimulated glucose metabolism in adipocytes of insulin-resistant rats (rats fed 50% sucrose and 30% fat), eighteen 5-wk-old Sprague-Dawley rats were fed, for 6 wk, a diet containing 30% fat as either fish oil (FO) or a mixture of vegetable and animal oils [control oils (CO)]. A third reference group was fed a standard diet (62% corn starch and 13% fat). At the end of the 6-wk period, the two experimental groups had comparable plasma glucose concentrations that were higher than that found in the reference group. FO feeding corrected the hyperinsulinemia of the experimental rats ($P < 0.05$) to reach values in the reference group. Plasma **triacylglycerol** ($P < 0.01$) and cholesterol ($P < 0.001$) concentrations were also lower in rats fed FO than in those fed CO. The body weights of FO-fed rats were similar to that of CO-fed rats, but epididymal adipose tissue weight was lower ($P < 0.01$). Adipocytes of FO fed rats, compared with those of CO-fed rats, had high insulin-stimulated glucose transport ($P < 0.05$), oxidation ($P < 0.001$) and incorporation into total lipids ($P < 0.05$). The incorporation of (n-3) polyunsaturated fatty acids in adipocyte **membrane** phospholipids was higher in FO-fed rats than in those fed CO ($P < 0.0001$). Insulin action was positively correlated with the fatty acid unsaturation index in **membrane** phospholipids. Thus dietary fish oil has beneficial effects on insulinemia, plasma lipids and insulin-stimulated glucose metabolism in insulin-resistant slightly diabetic rats.

L26 ANSWER 14 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 96284109 EMBASE
DOCUMENT NUMBER: 1996284109
TITLE: Bioactive lipids in foods.
AUTHOR: Calder P.C.

CORPORATE SOURCE: Department of Human Nutrition, University of Southampton, Bassett Crescent East,Southampton SO16 7PX, United Kingdom
SOURCE: Biochemical Society Transactions, (1996) 24/3 (814-824). ISSN: 0300-5127 CODEN: BCSTB5
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English

L26 ANSWER 15 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 96370552 EMBASE
DOCUMENT NUMBER: 1996370552
TITLE: Lipid biomarkers of adherence to low fat diets.
AUTHOR: Ashley J.M.
CORPORATE SOURCE: Division of Clinical Nutrition, UCLA School of Medicine,Los Angeles, CA 90024, United States
SOURCE: Advances in Experimental Medicine and Biology, (1996) 399/- (115-129). ISSN: 0065-2598 CODEN: AEMBAP
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English

L26 ANSWER 16 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 95098794 EMBASE
DOCUMENT NUMBER: 1995098794
TITLE: Temperature- and pressure-dependent phase behavior of monoacylglycerides monoolein and monoelaidin.
AUTHOR: Czeslik C.; Winter R.; Rapp G.; Bartels K.
CORPORATE SOURCE: Institute of Physical Chemistry I, University of Dortmund, Otto-Hahn-Strasse 6,D-44227 Dortmund, Germany
SOURCE: Biophysical Journal, (1995) 68/4 (1423-1429). ISSN: 0006-3495 CODEN: BIOJAU
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB We used x-ray and neutron diffraction to Study the temperature- and pressure-dependent structure and phase behavior of the monoacylglycerides 1- monoelaidin (ME) and 1-monoolein (MO) in excess water. The monoacylglycerides were chosen for investigation of their phase behavior because they exhibit mesomorphic phases with one-, two-, and three-dimensional periodicity, such as lamellar, an inverted hexagonal and bicontinuous cubic phases, in a rather easily accessible temperature and pressure range. We studied the structure, stability, and transformations of the different phases over a wide temperature and pressure range, explored the epitaxial relations that exist between different phases, and established a relationship between the chemical structure of the lipid molecules and their phase behavior. For both systems, a temperature-pressure phase diagram has been determined in the temperature range from 0 to 100.degree.C at pressures from ambient up to 1400 bar, and drastic differences in phase behavior are found for the two systems. In MO-water dispersions, the cubic phase Pn3m extends over a large phase field in the T,p-plane. At temperatures above 95.degree.C, the inverted hexagonal phase is found. In the lower temperature region, a crystalline lamellar phase is induced at higher pressures. The phases found in ME-water include the lamellar crystalline L(c) phase, the L(.beta.) gel

phase, the L(.alpha.) liquid- crystalline phase, end two cubic phases belonging to the crystallographic space groups Im3m and Pn3m. In addition, the existence of metastable phases has been exploited. Between coexisting metastable cubic structures, a metric relationship has been found that is predicted theoretically on the basis of the curvature elastic energy approximation only.

L26 ANSWER 17 OF 25 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1993:317483 BIOSIS
DOCUMENT NUMBER: PREV199396025833
TITLE: Sterol composition of yeast organelle **membranes** and subcellular distribution of enzymes involved in sterol metabolism.
AUTHOR(S): Zinser, Erwin; Paltauf, Fritz; Daum, Guenther (1)
CORPORATE SOURCE: (1) Inst. Biochem. und Lebensmittelchem., Technische Univ. Graz, Petersgasse 12/2, A-8010 Graz Austria
SOURCE: Journal of Bacteriology, (1993) Vol. 175, No. 10, pp. 2853-2858.
ISSN: 0021-9193.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Organelles of the yeast Saccharomyces cerevisiae were isolated and analyzed for sterol composition and the activity of three enzymes involved in sterol metabolism. The plasma **membrane** and secretory vesicles, the fractions with the highest sterol contents, contain ergosterol as the major sterol. In other subcellular **membranes**, which exhibit lower sterol contents, intermediates of the sterol biosynthetic pathway were found at higher percentages. Lipid particles contain, in addition to ergosterol, large amounts of zymosterol, fecosterol, and episterol. These sterols are present esterified with long-chain fatty acids in this subcellular compartment, which also harbors practically all of the **triacylglycerols** present in the cell but very little phospholipids and proteins. Sterol DELTA-24-methyltransferase, an enzyme that catalyzes one of the late steps in sterol biosynthesis, was localized almost exclusively in lipid particles. Steryl ester formation is a microsomal process, whereas steryl ester hydrolysis occurs in the plasma **membrane** and in secretory vesicles. The fact that synthesis, storage, and hydrolysis of steryl esters occur in different subcellular compartments gives rise to the view that ergosteryl esters of lipid particles might serve as intermediates for the supply of ergosterol from internal **membranes** to the plasma **membrane**.

L26 ANSWER 18 OF 25 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
ACCESSION NUMBER: 93096724 EMBASE
DOCUMENT NUMBER: 1993096724
TITLE: Effects of sugar beet fiber feeding on serum lipids and binding of low- density lipoproteins to liver **membranes** in growing pigs.
AUTHOR: Fremont L.; Gozzelino M.-T.; Bosseau A.F.
CORPORATE SOURCE: Lab. Nutrition/Securite Alimentaire, INRA,78352 Jouy-en-Josas Cedex, France
SOURCE: American Journal of Clinical Nutrition, (1993) 57/4 (524-532).
ISSN: 0002-9165 CODEN: AJCNAC
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Two groups of pigs were fed either a control diet or a diet containing

sugar beet fiber (SBF). After 4 wk, total serum cholesterol and high-density- lipoprotein cholesterol concentrations were similar on both diets. By contrast, the fasting **triacylglycerols** were 21% lower ($P < 0.05$) and apparent feed-conversion efficiency was 47% higher ($P < 0.01$) on the SBF diet than on the control diet. Accordingly, the effect of SBF did not appear to be mediated by an impairing effect on dietary lipid absorption. The results suggest that the decreasing effect of SBF on **triacylglycerols** was due to a reduction in very-low-density-lipoprotein synthesis without changes in the size of particles. The low-density-lipoprotein receptor activity of a liver plasma **membrane**-enriched fraction was not influenced by the dietary treatment; however, a significant negative relationship between cholesterol concentrations and the receptor activity was observed irrespective of the diet.

L26 ANSWER 19 OF 25 JICST-EPlus COPYRIGHT 2003 JST on STN
ACCESSION NUMBER: 900322867 JICST-EPlus
TITLE: Control of structure and physico-chemical behaviours in LB films.
AUTHOR: NAKAHARA HIROO
CORPORATE SOURCE: Saitama Univ., Faculty of Science
SOURCE: Kino Zairyo (Function & Materials), (1990) vol. 10, no. 3, pp. 12-30. Journal Code: Y0021A (Fig. 29, Tbl. 2, Ref. 48) ISSN: 0286-4835
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
STATUS: New

L26 ANSWER 20 OF 25 JICST-EPlus COPYRIGHT 2003 JST on STN
ACCESSION NUMBER: 870269117 JICST-EPlus
TITLE: Interaction of cyclodextrins with lipid membrane.
AUTHOR: MIYAJIMA KOICHIRO; SAITO HIROYUKI; NAKAGAKI MASAYUKI
CORPORATE SOURCE: Kyodai Yaku
SOURCE: Nippon Kagakkaishi (Journal of the Chemical Society of Japan, Chemistry and Industrial Chemistry), (1987) no. 3, pp. 306-312. Journal Code: F0226B (Fig. 18, Ref. 12) CODEN: NKAKB8; ISSN: 0369-4577
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
LANGUAGE: Japanese
STATUS: New
AB The interaction of cyclodextrins (CDs) with lipid membrane was investigated in terms of the leakage of marker compound, calcein, entrapped in inner aqueous phase of liposome, and the time course of surface pressure of monolayer of lecithin or cholesterol in the presence of aqueous CD solutions. The surface pressure of monolayer of lecithin spread on CD solution decreases in the order, .ALPHA.->.BETA.->.GAMMA.-CD, while that of cholesterol lies in the order, .BETA.->.GAMMA.->.ALPHA.-CD. The leakage of entrapped calcein lies in the order Di-O-methyl-.BETA.->.ALPHA.->.BETA.->Tri-O-methyl-.BETA.->.GAMMA.-CD for the liposome composed of 83 molar percent egg yolk lecithin and 17 molar percent dihexadecylphosphate. While the leakage of calcein lies in the order Di-O-methyl-.BETA.->.BETA.->.ALPHA.->.GAMMA.->Tri-O-methyl-.BETA.-CD for the liposome composed of equimolar mixture of egg yolk lecithin and cholesterol, and 17 molar percent dihexadecylphosphate. Judging from the above results, CD molecules recognize the lipid molecule in membrane by virtue of their cavity size for nonmethylated CD, and the cavity size and the hydrophobic character for methylated CDs. Then, they pull out the lipid molecules by forming the inclusion complex, resulting in the

destruction of **membrane structure**.(author abst.)

L26 ANSWER 21 OF 25 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 84080357 MEDLINE
DOCUMENT NUMBER: 84080357 PubMed ID: 6689941
TITLE: The energy equivalents of ATP and the energy values of food proteins and fats.
AUTHOR: Livesey G
SOURCE: BRITISH JOURNAL OF NUTRITION, (1984 Jan) 51 (1) 15-28. Journal code: 0372547. ISSN: 0007-1145.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198402
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19980206
Entered Medline: 19840224

AB Heats of combustion and energy equivalents of cytoplasmic ATP have been estimated for glucose, 101 food proteins and 116 food fats based on amino acid and fatty acid composition data from **food composition** tables and the heats of combustion and energy equivalents of cytoplasmic ATP of each individual amino acid, fatty acid, **glycerol** and glucose. The isodynamic equivalents of carbohydrate, fat and protein at the biochemical level have been investigated. Heats of combustion of food proteins and fats derived from compositional data were within 1% of published values obtained by calorimetry. Cytoplasmic ATP equivalents for glucose, fat and protein range from 9.0 to 14.7, 8.6 to 14.6 and 6.4 to 13.2 mol cytoplasmic ATP/MJ of metabolizable energy respectively, depending on the choice of mitochondrial proton stoichiometries for these estimations. The range is extended further when considering the level and type of mitochondrial 'uncoupling'. Isobioenergetic relationships between the efficiencies of glucose (G) and fat (F) (F = 1.05 G - 0.9) and glucose and protein (P) (P = G(1.02 - 0.19 f) - (1.8 + 0.5 f] energy conversions (where f is the fraction of protein oxidized via gluconeogenesis) were obtained and were essentially independent of the choice of mitochondrial proton stoichiometry and the level and type of uncoupling of oxidative phosphorylation. Potential errors in previous estimates of ATP yield from protein are shown to be as much as -17.6 to greater than 118%; accounting for the efficiency of mitochondrial oxidative phosphorylation narrows this to between -7.9 and 17.4% and accounting for the fraction of protein oxidized via gluconeogenesis limits this further to between -7.9 and 11.1%. Remaining uncertainty is attributed mostly to lack of knowledge about the energy cost of substrate absorption from the gut and transport across cell **membranes**. Coefficients of variation (cv) in the cytoplasmic ATP yield/g protein and /g protein nitrogen for the 101 food proteins were large (0.033 and 0.058 respectively). This is attributed mostly to variation in the metabolizable heats of combustion (cv 0.033 and 0.053 respectively) and to a much smaller extent in the efficiency with which cytoplasmic ATP equivalents are generated/MJ of metabolizable energy (cv 0.01). It is concluded that the current understanding of biochemical energy transduction is sufficient to permit only a crude estimate of the energy equivalents of cytoplasmic ATP but that these equivalents vary by less than 5% between both different food proteins and different food fats.(ABSTRACT TRUNCATED AT 400 WORDS)

L26 ANSWER 22 OF 25 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1983:248669 BIOSIS
DOCUMENT NUMBER: BA76:6161

TITLE: LIGHT INDUCED CHANGES IN THE LIPID COMPOSITION AND ULTRASTRUCTURE OF PLASTIDS FROM POTATO SOLANUM-TUBEROSUM CULTIVAR KING-EDWARD TUBERS.
AUTHOR(S): SANDELIUS A S; LILJENBERG C
CORPORATE SOURCE: DEP. OF PLANT PHYSIOL., BOTANICAL INST., UNIV. OF GOTEBORG, CARL SKOTTSBERGS GATA 22, S-413 19 GOTEBORG, SWEDEN.
SOURCE: PHYSIOL PLANT, (1982) 56 (3), 266-272.
CODEN: PHPLAI. ISSN: 0031-9317.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB Amyloplasts and **starch** containing plastids from green tissue, amylochloroplasts, from potato tubers (S. tuberosum L., cv. King Edward) were separated from other cell organelles by sedimentation in a discontinuous sucrose gradient. Their lipid composition was analyzed with emphasis on galactolipids and phospholipids and the fatty acid compositions of these lipids. Irradiation of the tubers caused increased ratios of monogalactosyl **diacylglycerol** to digalactosyl **diacylglycerol** and of total galactolipids to total phospholipids in the plastid membranes. The degree of unsaturation of the fatty acids increased in all lipid classes analyzed, this effect being most prominent in the galactolipids. The ultrastructural studies made on tuber tissue revealed that irradiation caused a change in **starch** grain size distribution concomitant with formation of **membrane structures** resembling grana within the envelope. In many cases, prolamellar bodies and plastoglobuli were present.

L26 ANSWER 23 OF 25 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1981:235013 BIOSIS
DOCUMENT NUMBER: BA72:19997
TITLE: MEASUREMENT OF METABOLITES ASSOCIATED WITH NONAQUEOUSLY ISOLATED **STARCH GRANULES** FROM IMMATURE ZEA-MAYS ENDOSPERM.
AUTHOR(S): LIU T-T Y; SHANNON J C
CORPORATE SOURCE: DEP. HORTIC., PA. STATE UNIV., UNIVERSITY PARK, PA. 16802.
SOURCE: PLANT PHYSIOL (BETHESDA), (1981) 67 (3), 525-529.
CODEN: PLPHAY. ISSN: 0032-0889.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB **Starch granules** with associated metabolites were isolated from immature Z. mays L. endosperm by a nonaqueous procedure using **glycerol** and 3-chloro-1,2-propanediol. The soluble extract of the granule preparation contained varying amounts of neutral sugars, Pi, hexose and triose phosphates, organic acids, adenosine and uridine nucleotides, sugar nucleotides and amino acids. Based on the metabolites present and on information about translocators in chloroplast **membranes**, which function in transferring metabolites from the chloroplast stroma into the cytoplasm, it is suggested that sucrose apparently is degraded in the cytoplasm, via glycolysis, to triose phosphates which cross the amyloplast **membrane** by means of a PO4 translocator. Hexose phosphates and sugars are produced from the triose phosphates in the amyloplast stroma by gluconeogenesis, with starch being formed from glucose 1-phosphate via pyrophosphorylase and starch synthase enzymes. The glucose 1-phosphate to Pi ratio in the granule preparation was such that starch synthesis by phosphorylase is highly unlikely in maize endosperm.

L26 ANSWER 24 OF 25 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1981:235012 BIOSIS
DOCUMENT NUMBER: BA72:19996
TITLE: A NONAQUEOUS PROCEDURE FOR ISOLATING **STARCH**

GRANULES WITH ASSOCIATED METABOLITES FROM MAIZE ZEA-MAYS ENDOSPERM.
AUTHOR(S): LIU T-T Y; SHANNON J C
CORPORATE SOURCE: DEP. HORTIC., PA. STATE UNIV., UNIVERSITY PARK, PA. 16802.
SOURCE: PLANT PHYSIOL (BETHESDA), (1981) 67 (3), 518-524.
CODEN: PLPHAY. ISSN: 0032-0889.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB A nonaqueous procedure using **glycerol** and 3-chloro-1,2-propanediol was developed for the isolation from maize of **starch granules** with associated metabolites. Immature endosperm tissue was quickly frozen at -156.degree. C, freeze-dried, homogenized in cold **glycerol**, filtered through Miracloth and centrifuged through a higher density medium of 3-chloro-1,2-propanediol. The procedure was used to isolate **starch granules** from the endosperm of normal maize and the mutant amylose-extender dull waxy. Starch and water-soluble polysaccharide recovery was high with low cytoplasmic (RNA) and nuclear (DNA) contamination. EM of the isolated **starch granules** failed to demonstrate the presence of the amyloplast's **membrane**. Based on an examination of fresh, freeze-dried and rehydrated freeze-dried normal endosperm, the amyloplast **membrane** and enclosed stroma metabolites apparently were dried onto the surface of the **starch granules** during the freeze-drying procedure. Chemical analysis of the **glycerol**-propanediol isolated granules showed the presence of alcohol-soluble sugars, Pi and PO4-containing compounds. These soluble metabolites may represent amyloplast stroma metabolites which became bound to the **starch granules** during freeze-drying. This isolation procedure should be useful when metabolites closely associated with **starch granules** in situ are to be evaluated.

L26 ANSWER 25 OF 25 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 82046743 MEDLINE
DOCUMENT NUMBER: 82046743 PubMed ID: 6794629
TITLE: Activation of the metabolism of the fatty acyl group in granulocyte phospholipids by phorbol myristate acetate.
AUTHOR: Tou J S
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1981 Sep 24) 665 (3) 491-7.
Journal code: 0217513. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198201
ENTRY DATE: Entered STN: 19900316
Last Updated on STN: 19980206
Entered Medline: 19820120

AB Phorbol myristate acetate is known to reproduce the stimulated oxidative activities characteristic of phagocytosis and its initial action is on the cell **membrane**. In the present study the effect of phorbol myristate acetate on the metabolism of the fatty acyl groups of granulocyte phospholipids was examined and compared with that of phagocytic stimuli. Phorbol myristate acetate stimulated the labeling of phosphatidylethanolamine, phosphatidylcholine and phosphatidylinositol by [1-14C]palmitic acid but not by [U-14C]**glycerol**, whereas **starch granules** selectively increased the labeling of phosphatidylinositol by both radioactive tracers. Labeled palmitic acid was found at both sn-1- and sn-2-positions of phospholipids and more radioactivity was recovered from the 2-position. The radioactivity at both positions was enhanced in stimulated cells. These data suggest that

phorbol myristate acetate increased palmitic acid incorporation into glycerophospholipids by increasing the acylation of the lyso derivatives and that **starch granules** enhanced the formation of phosphatidylinositol via de novo synthesis and acylation of the lyso derivative as well. Both phorbol myristate acetate and **starch granules** selectively augmented the incorporation of [1-14C]arachidonic acid into phosphatidylinositol which exhibited the highest specific radioactivity among the phospholipids in control and in stimulated cells. The possible significance of the increased incorporation of arachidonic acid into phosphatidylinositol is discussed.

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=> d que stat l28
L27 (          5)SEA L24
L28            5 DUP REMOV L27 (0 DUPLICATES REMOVED)

=> d ibib abs l28 1-5
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L28 ANSWER 1 OF 5 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2003) on STN

ACCESSION NUMBER: 2000:15315 AGRICOLA
DOCUMENT NUMBER: IND22024303
TITLE: Characterization of the carbohydrates of nonreduced glutenin fractionated by multistacking SDS-PAGE from two hard red spring wheat flours.
AUTHOR(S): Gujska, E.; Khan, K.
CORPORATE SOURCE: North Dakota State University, Fargo.
AVAILABILITY: DNAL (59.8 C33)
SOURCE: Cereal chemistry, Mar/Apr 1999. Vol. 76, No. 2. p. 198-203
Publisher: St. Paul, Minn. : American Association of Cereal Chemists, 1924-
CODEN: CECHAF; ISSN: 0009-0352
NOTE: Includes references
PUB. COUNTRY: Minnesota; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Native (nonreduced) glutenin aggregates of two hard red spring wheat flours (Len of good quality and line 205 of poor quality) containing the same high molecular weight glutenin subunits (2*, 7+9, and 5+10) were investigated for the possibility at glycosylation. Glutenins isolated by pH-precipitation were separated and purified under nonreducing conditions into five different molecular weight species by multistacking SDS-PAGE and by transfer to polyvinylidene difluoride (PVDF) **membranes** by electroblotting. Carbohydrate compositions of the total glutenin fraction and of the different molecular weight glutenin species separated on the stacking gels (4-12% acrylamide) were determined. More total carbohydrates were found in the total glutenin of the line 205 flour (2.33%) than in that of the Len flour (1.87%), with glucose and xylose contributing to the greater total amount in line 205. However, the total glutenin of Len had approximately twice as much of the total of arabinose, mannose, and galactose as line 205 had. After purification by electrophoresis, smaller amounts of monosaccharides (glucose, xylose, arabinose, galactose, and mannose) in the different molecular species were detected. After electroblotting to PVDF **membrane** to increase purification, no arabinoxylans were found. Following extraction of glutenin from **membranes**, the beta-elimination procedure in mild base under reducing conditions was used. In that procedure, the mono- or oligasaccharide side chains are released from the protein core, and the sugars originally involved in the protein-sugar linkage are reduced to the **sugar alcohol**. After derivatization (with trimethylsilyl), samples were analyzed by gas chromatography and mass spectrometry. Glucose, galactose, and a small amount of mannitol were found in most of the different glutenin aggregates, except that mannitol was not found in the 8% stacking gel glutenin fraction. The content of mannitol was greater in the higher molecular weight glutenin species at the 4 and 6% origins. These results support the hypothesis that the carbohydrates and protein in the glutenin macropolymer may be covalently

linked.

L28 ANSWER 2 OF 5 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2003) on STN

ACCESSION NUMBER: 97:81911 AGRICOLA
DOCUMENT NUMBER: IND20604427
TITLE: Influence of prestorage heat and calcium treatments on lipid metabolism in 'Golden Delicious' apples.
AUTHOR(S): Whitaker, B.D.; Klein, J.D.; Conway, W.S.; Sams, C.E.
CORPORATE SOURCE: USDA, ARS, Horticultural Crops Quality Laboratory, BARC-West, Beltsville, MD.
SOURCE: Phytochemistry, June 1997. Vol. 45, No. 3. p. 465-472
Publisher: Oxford : Elsevier Science Ltd.
CODEN: PYTCAS; ISSN: 0031-9422
NOTE: Includes references
PUB. COUNTRY: England; United Kingdom
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Heating 'Golden Delicious' apples for 4 days at 38 degrees and/or pressure infiltrating the fruit with a CaCl2 solution after harvest, maintains firmness and reduces decay during storage. The possibility that these beneficial effects involve changes in **membrane** lipid metabolism was investigated. Lipids of hypodermal cortical tissue were analyzed after 0, 1, 2 or 4 days at 38 degrees C and after storage (15 weeks at 0 degrees plus 1 week at 20 degrees) of fruit that were untreated (Ctl), heated 4 days at 38 degrees (HT), infiltrated with 2% CaCl2 (Ca) or heated then infiltrated (HT + Ca) before storage. Overall, effects of HT were much more pronounced than those of Ca and effects of HT + Ca were intermediate between those of HT or Ca alone. An initial phase of **membrane** damage induced by heating, indicated by **glycerolipid** loss over the first 1-2 days, could explain why HT for less than 34 days has an adverse effect on post-storage quality. HT effects on plastids, including accelerated chlorophyll and monogalactolipid loss, as well as carotenoid accumulation, are likely to cause the distinct yellowing of the fruit. HT-induced reductions in steryl glycosides and cerebrosides prior to storage similar to those that occurred in Ctl and Ca fruit during storage, and the phospholipid (PL) content of HT fruit after storage was close to that of Ctl fruit at harvest. Also, the ratio of linoleate to oleate in PL was much higher in HT and HT + Ca than in Ctl fruit at the end of storage. One or more of these effects of HT on **membrane** lipids could be involved in the ultimate benefits to fruit quality.

L28 ANSWER 3 OF 5 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2003) on STN

ACCESSION NUMBER: 84:106161 AGRICOLA
DOCUMENT NUMBER: FNI84005347
TITLE: The Energy equivalents of ATP and the energy values of food proteins and fats.
AUTHOR(S): Livesey, Geoffrey
AVAILABILITY: DNAL (389.8 B773)
SOURCE: The British journal of nutrition., Jan 1984 Vol. 51, No. 1. p. 15-28 ill., charts
Publisher: Cambridge : Cambridge University Press.
ISSN: 0007-1145
Target Audience: Specialized

NOTE: Includes 63 references.
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Extract: Heats of combustion and energy equivalents of cytoplasmic ATP have been estimated for glucose, 101 food proteins and 116 food fats based on amino acid and fatty acid composition data from **food composition** tables and the heats of combustion and energy equivalents of cytoplasmic ATP of each individual amino acid, fatty acid, **glycerol** and glucose. The isodynamic equivalents of carbohydrate, fat and protein at the biochemical level have been investigated. Heats of combustion of food proteins and fats derived from compositional data were within 1% of published values obtained by calorimetry. Cytoplasmic ATP equivalents for glucose, fat and protein range from 9.0 to 14.7, 8.6 to 14.6 and 6.4 to 13.2 mol cytoplasmic ATP/MJ of metabolizable energy respectively, depending on the choice of mitochondrial proton stoichiometries for these estimations. The range is extended further when considering the level and type of mitochondrial uncoupling'. Isobioenergetic relationships between the efficiencies of glucose (G) and fat (F)(F=1.05 G minus 0.9) and glucose and protein (P)(P=G(1.02 minus 0.19f) minus (1.8+0.5f)) energy conversions (where f is the fraction of protein oxidized via gluconeogenesis) were obtained and were essentially independent of the choice of mitochondrial proton stoichiometry and the level and type of uncoupling of oxidative phosphorylation. Potential errors in previous estimates of ATP yield from protein are shown to be as much as negative 17.6 to greater than 118%; accounting for the efficiency of mitochondrial oxidative phosphorylation narrows this to between negative 7.9 and 17.4% and accounting for the fraction of protein oxidized via gluconeogenesis limits this further to between negative 7.9 and 11.1%. Remaining uncertainty is attributed mostly to lack of knowledge about the energy cost of substrate absorption from the gut and transport across cell **membranes**. Coefficients of variation (cv) in the cytoplasmic ATP yield/g protein and /g protein nitrogen for the 101 food proteins were large (0.033 and 0.58 respectively). This is attributed mostly to variation in the metabolizable heats of combustion (cv 0.033 and 0.053 respectively) and to a much smaller extent in the efficiency with which cytoplasmic ATP equivalents are generated/MJ of metabolizable energy (cv 0.01). It is concluded that the current understanding of biochemical energy transduction is sufficient to permit only a crude estimate of the energy equivalents of cytoplasmic ATP but that these equivalents vary by less than 5% between both different food proteins and different food fats. Isobioenergetic equivalents for carbohydrates, fats and protein which could be applied to modify the Atwater conversion factors are possible but require first an accurate quantification of the energy equivalent of cytoplasmic ATP for glucose in vivo, and an indication that oxidative phosphorylation is similarly efficient in different individuals. (author)

L28 ANSWER 4 OF 5 CABA COPYRIGHT 2003 CABI on STN
ACCESSION NUMBER: 82:43094 CABA
DOCUMENT NUMBER: 810723090
TITLE: Measurement of metabolites associated with nonaqueously isolated **starch granules** from immature Zea mays L. endosperm
AUTHOR: Liu, T.-T. Y.; Shannon, J. C.
CORPORATE SOURCE: Dep. of Hort., Pennsylvania State Univ., University Park, PA 16802, USA.
SOURCE: Plant Physiology, (1981) Vol. 67, No. 3, pp. 525-529. 32 ref.
ISSN: 0032-0889
DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Starch granules** with associated metabolites were isolated from immature maize endosperm by a nonaqueous procedure using **glycerol** and 3-chloro-1,2-propanediol. The soluble extract of the granule preparation contained varying amounts of neutral sugars, inorganic phosphate, hexose and triose phosphates, organic acids, adenosine and uridine nucleotides, sugar nucleotides and amino acids. Based on the metabolites present and on information about translocators in chloroplast **membranes**, which function in transferring metabolites from the chloroplast stroma into the cytoplasm, it was suggested that sucrose is degraded in the cytoplasm, via glycolysis, to triose phosphates which cross the amyloplast **membrane** by means of a phosphate translocator. Hexose phosphates and sugars were thought to be produced from the triose phosphates in the amyloplast stroma by gluconeogenesis, with starch being formed from glucose 1-phosphate via pyrophosphorylase and starch synthase enzymes. The ratio of glucose 1-phosphate:inorganic phosphate in the granule preparation was such that starch synthesis by phosphorylase was highly unlikely in maize endosperm.

L28 ANSWER 5 OF 5 CABA COPYRIGHT 2003 CABI on STN

ACCESSION NUMBER: 82:43093 CABA
DOCUMENT NUMBER: 810723089
TITLE: A nonaqueous procedure for isolating **starch granules** with associated metabolites from maize (Zea mays L.) endosperm
AUTHOR: Liu, T.-T. Y.; Shannon, J. C.
CORPORATE SOURCE: Dep. of Hort., Pennsylvania State Univ., University Park, PA 16802, USA.
SOURCE: Plant Physiology, (1981) Vol. 67, No. 3, pp. 518-524. 27 ref.
ISSN: 0032-0889
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A nonaqueous procedure using **glycerol** and 3-chloro-1,2-propanediol was developed for the isolation from maize of **starch granules** with associated metabolites. In this procedure, immature endosperm tissue was quickly frozen at -156 deg C, freeze-dried, homogenized in cold **glycerol**, filtered through Miracloth and centrifuged through a higher density medium of 3-chloro-1,2-propanediol. The procedure was used to isolate **starch granules** from the endosperm of normal and the mutant amylose-extender dull waxy. Starch and water-sol. polysaccharide recovery was high with low cytoplasmic (RNA) and nuclear (DNA) contamination. Electron microscopic examination of the isolated **starch granules** failed to demonstrate the presence of tne amyloplast **membrane**. When fresh, freeze-dried, and rehydrated freeze-dried normal endosperm was examined the amyloplast **membrane** and enclosed stroma metabolites were considered to be dried on to the surface of the **starch granules** during the freeze-drying procedure. Chemical analysis of the **glycerol** -propanediol isolated granules showed the presence of alcohol-soluble sugars, inorganic phosphate, and phosphate-containing compounds. These soluble metabolites were thought to represent amyloplast stroma metabolites which became bound to the **starch granules** during freeze-drying. This isolation procedure was expected to be useful when metabolites closely associated with **starch granules** in situ are evaluated.

=> d ibib abs hitrn l17 1-2

L17 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1993:407715 HCAPLUS
DOCUMENT NUMBER: 119:7715
TITLE: Use of propylene glycol alginate to improve the texture of pasta and pasta-like foods
INVENTOR(S): **Chawan, Dhyaneshwar B.**; Merritt, Carleton G.; Matuszak, Edward A.
PATENT ASSIGNEE(S): Borden, Inc., USA
SOURCE: Can. Pat. Appl., 27 pp.
CODEN: CPXXEB
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 2061036	AA	19930301	CA 1992-2061036	19920211
CA 2061036	C	19970506		

PRIORITY APPLN. INFO.: US 1991-751017 19910828

AB Propylene glycol alginate (I) is added into a dough not derived from wheat flour to improve the texture of pasta and to reduce non-enzymic retrogradation of the **starch** and amylose release from the **starch**. Also, the addn. of I enhances the retortability and reduces cooking loss of the foods, esp. in the presence of egg white and tri-Et citrate. Preferably, I is pre-dehydrated before addn. to the dough.

L17 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1980:632621 HCAPLUS
DOCUMENT NUMBER: 93:232621
TITLE: Role of potassium chloride, sodium chloride, and ABA on the stomatal regulation in four desert plant species
AUTHOR(S): **Chawan, D. D.**
CORPORATE SOURCE: Dep. Bot., Univ. Jodhpur, Jodhpur, 342001, India
SOURCE: Environ. Physiol. Ecol. Plants (1978), 329-49.
Editor(s): Sen, David N.; Bansal, Rajinder P. Bishen Singh Mahendra Pal Singh: Dehra Dun, India.
CODEN: 44OEAS
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The stomatal openings in Convolvulus arvensis, C. microphyllus, Barleria acanthoides and B. prionitis were influenced by different concns. of KCl and NaCl. A 3-h incubation was optimum for max. stomatal opening. ABA [21293-29-8] inhibited KCl and NaCl-induced stomatal opening to a great extent. However, KCl and NaCl could nullify the ABA induced stomatal closure to a certain extent. The appearance and disappearance of **starch** [9005-25-8] in the guard cells was assocd. with closing and opening of stomatal aperture. Particulate movement was generally obsd. in subsidiary cells. The neutral red uptake was faster in subsidiary cells with particular movement, followed by guard cells.

=> log hold

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	59.55	366.02

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-5.21	-5.21

SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 15:23:30 ON 16 SEP 2003

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=> d his ful

     (FILE 'HOME' ENTERED AT 10:51:38 ON 16 SEP 2003)

     FILE 'HCAPLUS' ENTERED AT 10:51:52 ON 16 SEP 2003
                E CHAWAN/AU
L1             34 SEA ABB=ON  ("CHAWAN D D"/AU OR "CHAWAN DHYANESHWAR B"/AU)
L2              2 SEA ABB=ON  L1 AND ?STARCH?
                  D TI 1-2
L3              0 SEA ABB=ON  L1 AND ?DIABETES?
                  D TI L1 1-34

     FILE 'REGISTRY' ENTERED AT 11:10:02 ON 16 SEP 2003
                E GLYCEROL/CN
L4              1 SEA ABB=ON  GLYCEROL/CN
                  E SUGAR ALCOHOL/CN
                  E STARCH HYDROLYSATE/CN
                  E CORN SYRUP/CN
L5              1 SEA ABB=ON  "CORN SYRUP"/CN
                  E DEXTROSE SYRUP/CN
                  E DEXTROSE/CN
L6              1 SEA ABB=ON  DEXTROSE/CN
                  E PROPYLENE GLYCOL ALGINATE/CN
L7              1 SEA ABB=ON  "PROPYLENE GLYCOL ALGINATE"/CN
                  E GLYCEROL ALGINATE/CN
L8              1 SEA ABB=ON  "GLYCEROL ALGINATE"/CN
                  E GLYCEROL MONOSTEARATE/CN
L9              1 SEA ABB=ON  "GLYCEROL MONOSTEARATE"/CN
                  E SODIUM STEAROYL LACTYLATE/CN
L10             1 SEA ABB=ON  "SODIUM STEAROYL LACTYLATE"/CN
L11             7 SEA ABB=ON  L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10

     FILE 'HCAPLUS' ENTERED AT 11:14:57 ON 16 SEP 2003
L12        158200 SEA ABB=ON  (L7 OR ?GLYCEROL? OR ?SUGAR?(W)?ALCOHOL? OR
                  ?STARCH?(W)?HYDROLYSATE? OR (?CORN? OR ?DEXTROSE?)(W)?SYRUP?
                  OR (?PROPYLENE?(W)?GLYCOL? OR ?GLYCEROL?)(W)?ALGINATE? OR
                  ?GLYCEROL?(W)(?MONOSTEARATE? OR ?STEARATE?) OR ?SODIUM?(W)?STEA
                  ROYL?(W)?LACTYLATE?)
L13            69 SEA ABB=ON  L12 AND ?STARCH?(W)(?GRANULE? OR ?PARTICLE?)
L14             0 SEA ABB=ON  L13 AND ?MEMBRANE?(W)?STRUCTURE?
L15             5 SEA ABB=ON  L13 AND ?MEMBRANE?
L16           118 SEA ABB=ON  L12 AND (?STARCH?(W)(?GRANULE? OR ?PARTICLE?) OR
                  ?FOOD?(W)?COMPOSITION?)
L17             7 SEA ABB=ON  L16 AND ?MEMBRANE?
                  D AU TI 1-7
L18           349 SEA ABB=ON  L12 AND ?MEMBRANE?(W)?STRUCTURE?
L19             1 SEA ABB=ON  L18 AND ?STARCH?
L20             8 SEA ABB=ON  L17 OR L19   8 cits from CA Plus - "L24" on printout
                  SAVE L20 WED826L20/A

     FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, JICST-EPLUS, JAPIO' ENTERED AT
     11:24:42 ON 16 SEP 2003
L21            27 SEA ABB=ON  L20
L22            25 DUP REMOV L21 (2 DUPLICATES REMOVED)  25 cits from biomed + patent db's
                  D AU 1-25                              "L26" on printout
                  SAV L22 WED826L22/A

     FILE 'AGRICOLA, CABA, CROPB, CROPR, CROPU, FSTA, FROSTI, LIFESCI' ENTERED
     AT 11:34:02 ON 16 SEP 2003
L23             5 SEA ABB=ON  L20
L24             5 DUP REMOV L23 (0 DUPLICATES REMOVED)  5 cits from agr/food db's
                  SAV L24 WED826L24/A                   "L28" on printout
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